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**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER II  
SESSION 2022/2023**

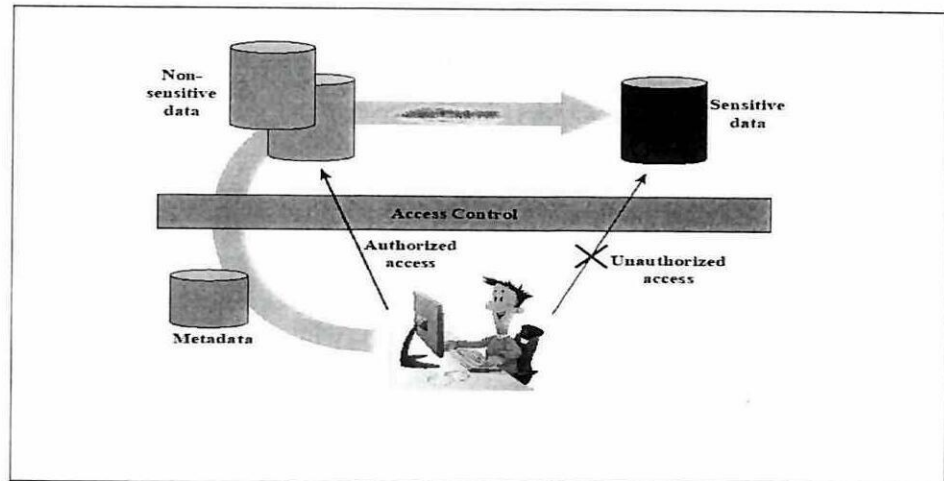
- COURSE NAME : SOFTWARE ENGINEERING SECURITY
- COURSE CODE : BIE 33003
- PROGRAMME CODE : BIP
- EXAMINATION DATE : JULY / AUGUST 2023
- DURATION : 3 HOURS
- INSTRUCTIONS :
1. ANSWER ALL QUESTIONS.
  2. THIS FINAL EXAMINATION IS CONDUCTED VIA **CLOSED BOOK**.
  3. STUDENT ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED BY CLOSED BOOK.

THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES

**TERBUKA**

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- Q1** (a) Describe **TWO (2)** security requirements related to database access control. (2 marks)
- (b) Design an access control policy using Role Base Access Control (RBAC) for THiJARI system as in **Figure Q1**. (10 marks)
- (c) Question **Q1(c) (i)** and **Q1(c)(ii)** are based on **Figure Q1(c)**.



**Figure Q1(c)**

- (i) Determine the attack imply in **Figure Q1(c)**. (2 marks)
- (ii) Propose **THREE (3)** countermeasures for the attack. (6 marks)
- Q2** (a) Determine **TWO (2)** components of intruder control procedure. (2 marks)
- (b) Describe **THREE (3)** steps typically used by intruders when attacking a system. Provide an example for each step. (6 marks)
- (c) Compare **THREE (3)** differences between Honeypots and Snort. (6 marks)
- (d) Demonstrate how Honeypots can be applied in detection of an intruder. (6 marks)

**Q3** Answer **Q3(a)-Q3(e)** based on **Figure Q1**.

- (a) Propose a suitable software process model to develop a secure system. Justify your answer. (5 marks)
- (b) Develop a use case diagram. (15 marks)
- (c) Outline **THREE (3)** critical assets. (3 marks)
- (d) Determine **THREE (3)** main security goals for the assets answer in **Q3(c)**. (10 marks)
- (e) Based on the goals answered in **Q3(d)**,
  - (i) model the threat to the system using misuse case diagram. (10 marks)
  - (ii) asses the risk. (5 marks)
  - (iii) specify the related security requirements. (12 marks)

- END OF QUESTIONS -

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THiJARI is Tabung Haji's network of digital services that started operating on 5 February 2020. It is an online platform for services provided for **TH** depositors such as:

1. Account Checking
2. Print of Account Statement
3. Fund Transfer
4. Hajj services
5. Nominee & Hibah Amanah
6. Distribution of Salary Deduction
7. Kelab TaHa

**Services Offered In THiJARI**

The services offered in THiJARI mobile application are the same as what is on THiJARI web except "My Profile", "Favourite Account" dan "Hajj Offer Acceptance" which are:

**1. Managing Savings and Withdrawal**

**TH** depositors can:

- Summarized and detailed account information, transaction records, account balance, transfer funds between **TH** accounts (own and third parties).
- Transfer funds between bank accounts to **TH** accounts (Platform FPX).
- Direct Debit Registration, Maintenance and Termination between bank accounts to **TH** accounts (Platform eMandate Direct Debit).
- Update profile.
- Account statements can be downloaded and printed. Favourite accounts also can be set.

**2. Virtual Account Opening (VAO)**

Potential **TH** depositors can open a new **TH** Account for adults and children via THiJARI to ease the process of opening a **TH** account.

**3. Hajj Services**

To ease Hajj processes, **TH** depositors can:

- Check Hajj registration status and download their Hajj registration slip.
- For Hajj Offer, offer letter, Hajj Offer checking and responding to Hajj offer can be done via THiJARI.
- Check and download flight schedules.

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- For Hajj Course, depositors can check location and date of the course as well as can download Hajj Courses notes.
- Do Hajj Appeal to ease the appeal process. Online Hajj Appeal Tutorial Videos.
- Make Dam & Qurban payment and also Sadaqah.

**4. Penamaan / Hibah Amanah**

*TH* depositors can view and check their status of Nomination / Hibah Amanah for own account and trustee account.

**5. Kelab TaHa**

Kelab TaHa new membership numbers is available in the E-membership card menu and exclusive offers for Kelab TaHa members can be checked in the Rakan Kelab TaHa menu - Directory & Location.

**6. Distribution of Salary Deduction**

*TH* depositors can do Monthly Salary Distribution to distribute the salary deduction to depositor / family member (Active *TH* account only).

**7. eTelegraphic Transfer Application**

Allow *TH* depositors to transfer money from their *TH* Account to their own bank account through eTelegraphic Transfer Application.

**8. eForms**

Allow *TH* depositors to complete JP Forms at Landing Page THiJARI to ease the process at *TH* counters. There are eight (8) forms provided which are:

- i) JP005 - BORANG PERMOHONAN PENGELUARAN PUSAKA
- ii) JP006 - BORANG AKUAN WARIS PENGELUARAN PUSAKA
- iii) JP008 - BORANG PERTUKARAN HAK PENJAGAAN
- iv) JP011 - BORANG PERMOHONAN PENUTUPAN AKAUN
- v) JP025 - BORANG JAMINAN GANTI RUGI
- vi) JP028 - BORANG KEBENARAN WAKIL PERMOHONAN PENYATA MINI
- vii) JP030 - BORANG KEBENARAN WAKIL PENDEPOSIT UZUR LUAR PREMIS (DALAM KENDERAAN)
- viii) JP037 - BORANG PERSETUJUAN PENJAGA PERTUKARAN AKAUN KANAK-KANAK KE DEWASA

**Figure Q1**

(adopted from <https://www.tabunghaji.gov.my/en/savings/services/thijari#> on 6 May 2023)